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ABSTRACT

As part of an ongoing investigation of the relationship between teacher behavior and pupil affective and cognitive outcomes, coders practiced recording their observations of existing classroom videotapes in order to determine the amount of interobserver agreement. The videotapes were coded, using seven existing low- to medium-inference classroom observation systems. All coders coded three reliability tapes prior to coding 36 test tapes. The systems used to code the videotapes were the Spaulding Teacher Activity Rating Schedule; Teacher-Child Dyadic Interaction System (Brophy-Good); Observation Schedule and Record Form; Flanders System of Interaction Analysis; Florida Climate and Control Systems; CERLI Verbal-Behavior Classification System; and Classroom Communication Observational Categories. Data on encoding, using two high-inference measures, the Classroom Observation Scales and Teacher Evaluation Scale, were also collected. Tables showing interobserver agreement on the 36 videotapes and coding directions for the observation instruments are appended. (MH)

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DATA COLLECTION PROCEDURES FOR THE EVALUATION OF TEACHING PROGRAM, PHASE II

C. L. KUGLE

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Introduction and Overview of The Evaluation of Teaching Program

The Evaluation of Teaching Program (EOT) is an ongoing NIE-funded investigation focusing on the methodological problems related to teacher effectiveness research. Attempts by the EOT to explain the relative failure of educational research to identify convincing, stable relationships between teacher performance and pupil achievement have led this program through a variety of research efforts. To begin with, a comprehensive review of the teacher effectiveness literature guided a data collection effort which was aimed at overcoming the methodological problems and narrow scope which were characteristic of the studies reviewed. These data, collected in fifth-grade mathematics and social studies classes in the Austin (Texas) Independent School District, were subjected to a series of analyses which attempted to establish empirical evidence of relationships between teacher behaviors and pupil affective and cognitive outcomes. The results of this series of analyses yielded a wide variety of research products but no better results than previous efforts to establish process-product relationships. These early studies of the EOT did, however, serve to confirm the existence of four major methodological problems which had been identified in the teacher effectiveness literature review. These four problems, which were felt by EOT to be largely responsible for both the difficulty of identifying convincing relationships between teacher behavior and pupil achievement, and the failure of researchers to build credible quantitative systems by which to measure individual teacher persofmances, are:

1. a narrow range of measurements frequently employed in individual studies of teacher behavior;
2. inconsistent use of specific instruments across studies measuring the same or similar hypotheses;

3. lack of a generic framework or guide from which to select behaviors to be measured in the classroom; and
4. use of instruments with inadequate psychometric characteristics to measure these classroom behaviors.

(A more in-depth discussion of these problem areas may be found in the Prospectus for the EOT; see note 1.)

The identification of these methodological shortcomings led the EOT to two interrelated decisions which guided its research in 1976. The first decision was that teacher behavior should be the focus of investigation, since accurate measurement of teacher process variables is an essential prerequisite to the determination of clear relationships between teacher behavior and pupil gain. Since the evaluation of teaching behavior implies the evaluation of the instrumentation used to measure it, the second decision of importance was to study teacher process via systematic observation. Classroom observation systems provide a direct, quantitative account of classroom activity, supplying a more objective means of analyzing teacher behavior than other process measures such as teacher, peer, or administrator ratings.

It was decided that the creation of new observation systems for the purposes of the current study would be less productive than the utilization of some of the wide variety of observation systems already in existence. Thus, the intent of the current investigation was to study teacher process by means of five commonly used observation instruments, the psychometric properties of which--aside from interjudge reliability--were relatively unknown. The following criteria were considered in selecting the systems to be studied:
(1) the system should be in common usage among educational researchers;
(2) the system should include typical teacher behaviors which would appear on

several systems; (3) the system should contain explicit, behavioral, and generally low- to medium-inference categories.

Five systems were originally selected for study on the basis of these criteria: the Flanders System of Interaction Analysis (Flanders, 1970); the Dyadic Interaction Analysis (Brophy & Good, 1969); the Spaulding Teacher Activity Rating Schedule (Spaulding, 1975); the Observation Schedule and Record (Medley & Mitzel, 1958); and, the Florida Climate and Control System (Soar, Soar, & Ragosta, 1971).

The original research plan called for the location of two expert coders in each system to code videotapes of teachers, utilizing the system of their expertise. Deviation from this plan occurred when expert coders could not be located for a particular system; in this case, training of two naive coders in the system was arranged. In addition, two other classroom observation systems, the Cerli Verbal-Behavior Classification System[4] and the Classroom Communication Observational Categories (Withall, Lewis, & Newell, 1961), were included during the data collection effort. These are described later in the text of this report.

In order to present a clear picture of the data collection procedures utilized in carrying out this research, the remainder of this report will proceed in the following manner. The videotape library will be described first, followed by a brief overview of the general procedures followed for each system. This will be followed by individual descriptions of each system and the specific procedures used by each pair of coders to observe and code the tapes. The discussion will proceed in order from those systems for which we were able to locate expert coders, to those systems for which training by an expert was provided to naive coders, ending with those systems

for which training was provided by the EOT staff. In addition to these low-inference systems, data on two high-inference measures, the Classroom Observation Scales (Emmer, 1971), and the Teacher Evaluation Scale, were collected; these will be described last.

Results of analyses of these data are included in separate reports. For descriptions of the data analyses procedures and discussions of the results obtained from this study, the reader is referred to Borich, Malitz, and Kugle (1978); Calkins, Borich, Pascone, and Kugle (1977); and, Calkins, Borich, Pascone, Kugle, and Marston (1977).

The Videotape Library

It was decided to utilize videotapes of classroom instruction in order to provide standardization of the coding context for each system. Videotapes permit repeated observations of classroom interaction, free of time constraints, and allow for unhurried investigation of the nature of the instructional episode, which cannot be obtained in live classroom situations.

After reviewing most of the existing videotape libraries produced by major educational research studies of the last decade, it was decided that the classroom videotapes supplied by the Stanford and Texas Research and Development Centers possessed the best technical and research design characteristics for the purposes of this study. The Stanford Library (Clark, 1976) consists of 12 junior high teachers in small group instruction, teaching social studies under controlled preparation conditions on from three to five occasions, lasting approximately 50 minutes each. The Texas videotape Library is a series done for the Individualized Teaching for Effective Coping Study (ITEC).[2] These tapes are 25-30 minute segments of either math or social studies lessons in an actual fifth-grade class, using traditional instructional methods.

Both the Stanford and Texas videotape libraries were transferred to video cassettes for use on a Sony VP-2000 U-matic 19mm (3/4") cassette videoplayer.

The videotapes were divided into three sets to facilitate this investigation. The first set, the test tapes, consisted of those tapes used during the data collection effort; the second set, the reliability tapes, were those tapes used to determine interrater reliability prior to data collection; and the third set, the training tapes, were to be used for practice in coding in order to achieve satisfactory levels of reliability prior to the actual data collection.

The test set of videotapes was selected from the Stanford Library, and consisted of 12 teachers, observed on three occasions, making a total of 36 50-minute videotapes. These tapes provided a varied sample of teacher behaviors to which all the classroom systems employed in the current study could be applied.

Three additional tapes from the Stanford Library were used to determine the interrater reliability of the coders prior to actual data collection. If the interrater reliability indicated that more practice in coding videotapes with the system being studied was needed, ten tapes from the Texas Library were used as practice tapes. In some cases, to be described later, these latter tapes were also used in the training of coders.

General Procedures

As mentioned previously, all coders who participated in the study coded three reliability tapes prior to coding the 36 test tapes. This was done in order to determine the interobserver agreement, or reliability, between the coders. If the reliability coefficients (computed using Scott's Pi; see Scott, 1955) were not sufficiently high, the coders were given a training tape to code to improve their reliability. During the actual coding of the reliability

tapes, coders were not allowed to stop the tape and/or discuss the coding. However, after a tape had been coded, the coders were free to replay it and discuss any problems or hard-to-categorize behaviors. Most pairs of coders demonstrated satisfactory reliability on two of the three reliability tapes and immediately proceeded to code the test tapes.

As much as possible, it was desired that the coding occur as it would in an actual classroom. Therefore, all the observers were instructed to code each session without stopping the tape, or discussing codes with one another. Many of the sessions had nonacademic beginnings; observers were instructed to code these, and also to code through minor disturbances in the audio or visual qualities of the tapes. All coders were given an outline of the tape sequence, containing a description of each teacher, the location of the teacher on the splitscreen, the first audible statement on the tape and the first statement to be coded, if not the first statement (see Appendix A for an example).

Questionnaires were completed by each coder after the third sample tape was coded, and at the end of the data collection. The questionnaires collected demographic information for each coder and requested opinions as to the quality of the audio and visual portions of the tapes, the applicability of the observation system used to the type of instruction on the tapes, and the differences, if any, between the videotaped teachers, pupils and classroom settings and those usually seen in "live" classrooms. The postcoding questionnaire also contained rating forms for evaluation of the teachers viewed in terms of teaching method, classroom content, rapport with the students, ease of coding, and personal preference. In addition, several of the coder pairs were interviewed after the data collection period in order

to collect information regarding any changes which might have been made to adapt the system used to videotape, procedures the coders used to obtain high reliabilities, which categories were difficult or easy to code, and coders' opinions on the study in general.

Low-Inference Systems

Spaulding Teacher Activity Rating Schedule (STARS)

The Spaulding Teacher Activity Rating Schedule (STARS) (Spaulding, 1975) is an observation coding system designed to assess the cognitive instructional methods, and affective and control strategies of teachers. The instrument consists of 25 subcategories which are subsumed under several molar categories: affective behavior, motor and social structuring, attainment and development, concept checking, value expression, and listening/observing. (See Appendix B for the form of STARS used in this study.) STARS data are gathered by time sampling techniques, using 10-second intervals. The instrument was designed to measure teacher-pupil transactions and has a companion instrument, the Coping Analysis Schedule for Educational Settings (CASES), which contains codes for the pupil part of classroom interactions. CASES codes, recorded at 10-second intervals, may be applied to the class as a whole or to an individual pupil.

Two coders competent in utilizing the STARS and CASES instruments were located and arrangements were made for them to come to the R&D Center for the study. The coders had from two to four years experience with the STARS/CASES system and had spent the two years prior to this study observing in live classrooms for the Carroll County (Georgia) Project (Coker, 1976).

Since the coders had a limited amount of time to spend in Austin, it was planned that they would observe the test tapes over a six-day period, coding

approximately six tapes a day. The STARS coders had access to the reliability tapes and coded two of them before coming to Austin; they coded the third one after arriving. Thirty-three of the test videotapes were subsequently coded at the Austin R&D Center; due to a malfunction in the videotape machine which broke tapes 27, 28, and 36, these were coded at Stanford after the coders returned to California and the data were mailed to us. The highest prestudy reliability and the reliabilities for the test tapes are given in Table I.

One change was made in the usual application of the STARS/CASES observation system; the interval of coding time was lengthened from 10 seconds to 15 seconds. Since each videotape viewed was approximately 50 minutes long, a 15-second interval allowed a substantial quantity of data to be gathered on each teacher without completely exhausting the coders. Since the CASES (pupil) data were considered integral to the total observation system, the coders recorded the pupil behaviors as well as the teacher behaviors. These pupil data are not reported here since the intent of the present study was to evaluate the measurement of teacher behavior.

Teacher-Child Dyadic Interaction System (DIS)

The Teacher-Child Dyadic Interaction System (DIS) (Brophy & Good, 1969) differs from other commonly used classroom observation systems in that it emphasizes the classroom interactions in which the teacher is dealing with an individual student. Thus some types of classroom behavior, such as expository lecturing, are omitted entirely from the system. Since the teacher's interactions in the class are recorded and analyzed separately for each individual student, the student, rather than the class, is treated as the unit of analysis. The major categories of this system are: response

opportunities, level of question, quality of child's response, teacher's feedback reactions, work-related contacts, behavior evaluations, and procedural contacts. An observation is recorded on the DIS for each interaction that occurs.

Although both the investigators and the coders were aware that there might be difficulties in coding teacher-child interaction from videotapes of small-group teaching which contained a lot of choral responding from the pupils, it was felt that this system was flexible enough to adapt to the constraints of videotapes and valuable enough to warrant the attempt. Therefore, two coders experienced in the DIS were located in Austin and employed to code the test tapes. However, after completion of the reliability tapes, the coders commented that the system did not work very well for the teachers observed, since group responses occurred at a high level and individual pupil responses were not easily identifiable. In addition, the presence of interactions such as student introductions and other "getting to know each other" activities presented difficulties in coding which could not be dealt with by reference to the DIS manual. In spite of these difficulties, it was felt that the reliabilities of the particular teacher behavior categories of interest to the EOT were satisfactory and the coders were instructed to code the test tapes. Early during the data collection period, one of the coders moved to California and completed coding the remainder of the videotapes at the Stanford R&D Center.

Data on the DIS instrument were collected for all test tapes and the resultant reliability values are given in Table I. As can be seen from the table, the interobserver agreement coefficients attained by the DIS coders were generally low and inconsistent. Since this outcome might be due to any of a variety of causes, including the difficulties in adapting the DIS

to videotapes and the separation of the coders during the early part of the data collection period, it was decided not to use the DIS data in any subsequent analyses.

In addition to the DIS, the coders provided data on the Classroom Observation Scales (COS) (Emmer, 1971), a 12-variable high-inference instrument which measures classroom process variables. A complete description of this instrument and the data collection procedures for it are included in the section in this report on high-inference measures.

Observation Schedule and Record Form (OScAR)

The Observation Schedule and Record Form (OScAR 5V) (Medley & Mitzel, 1958) is a system for classifying teacher verbal behaviors observed in the classroom. The OScAR 5V codes classroom behavior under three major categories: (1) teacher statements; (2) substantive interchanges (teacher/student interaction focused on lesson content); and, (3) nonsubstantive interchanges (teacher/student interaction involving subjects other than lesson content). Each of these categories is further subdivided so that behaviors may be more specifically identified. Coders are instructed to categorize the teacher verbalizations on the basis of the student's perception of the teachers' behavior. Coding on the OScAR 5V is utterance based, an utterance being defined as any verbalization which expresses or communicates a single idea or thought (Medley, 1976). See Appendix C for the form of OScAR 5V used in this study.

Since trained coders on the OScAR 5V could not be readily located, two graduate students in educational psychology were employed to learn this system and code the sample tapes. Training for these coders had three basic phases. The first phase included familiarization with the OScAR 5V coding manual (Medley, 1976) and the categories it contains. This was followed

by practice in coding an audiotape supplied by Don Medley, one of the authors of the OScAR 5V system. During the second stage of training, the coders went to the University of Virginia and consulted with Dr. Medley on coding procedures, receiving additional practice and training on several audiotapes. While in Virginia, the coders learned that Dr. Medley was considering including a pupil verbalization category of "choral response" on the OScAR 5V; it was decided to adopt this category for the current study since it was appropriate to the types of interactions seen on the videotapes.

After returning to Texas, the coders began the third phase of training which consisted primarily of coding training videotapes from the Texas R&D Library. A typical session of training included coding a portion of a videotape, calculating reliability on the codes, then discussing discrepancies while replaying the tape. Ground rules between the two coders were outlined during this time.

The training period extended over two months, involving approximately four to six hours a week. Coding of the sample of videotapes was completed over a six-week period; see Table I for the highest prestudy reliability and the reliability values for the test tapes. As can be seen from the coefficients, the coders progressed to a satisfactory level of reliability over time and maintained this level consistently during the data collection.

Flanders System of Interaction Analysis (FSIA)

The Flanders System of Interaction Analysis (FSIA) (Flanders, 1970) contains 10 categories of classroom verbal behavior, seven of which pertain to teacher behavior. The categories are intended to be mutually exclusive and all-inclusive and thus should cover any type of verbal behavior evidenced in a classroom. Coding is done at 3-second intervals, the observer indicating by category number which type of verbal behavior occurred during the interval.

Two graduate students were selected to receive training in the Flanders system. An expert FSIA trainer from Multi-Media Associates[3] conducted two days of training for the two coders and several of the EOT staff. After an overview of the development and uses of the Flanders system, the training sessions focused on definition of the 10 categories, establishment of specific ground rules for coding, experience in coding on matrix forms, calculation of reliability values, and practice in coding audiotapes of teacher-student interactions. The audiotapes were accompanied by typescripts of the lessons, which had been previously coded by an expert. The typescripts provided a convenient means of comparing specific codes and resolving any discrepancies in classifying the verbal behavior contained in the tapes.

During the week following training, the coders practiced using the FSIA to code several of the training videotapes. Reliabilities for these tapes were satisfactory and the coders began coding the sample tapes at an average of six tapes a week. The data collection was completed in approximately six weeks. During this time, the interobserver reliability values remained at a high, consistent level, as shown in Table I. See Appendix D for a copy of the FSIA.

In addition to the FSIA data, the coders completed a Teacher Evaluation Scale after viewing each videotape. The Teacher Evaluation Scale (TES) is a 9-item, high-inference system developed by the EOT staff; it is described more fully in the section on high-inference systems in this report.

Florida Climate and Control Systems (FlaCCS)

The original plan of investigation included use of the Florida Climate and Control System (FlaCCS) (Soar, Soar, & Ragosta, 1971), a two-part instrument which focuses on (1) the teacher's direction and control of the classroom and the pupils' responses to such management, and (2) the expression

of teacher and pupil affect, both positive and negative. After a lengthy review of the instrument and much discussion, it was decided that the behaviors contained on the FlaCCS are broken down into such small units (e.g., "smiles," "laughs," "nods"), that they are not readily comparable to the behaviors contained in the other systems included in this investigation. This inequity of behaviors across systems when the FlaCCS was included (even when categories were combined) raised serious doubts regarding its utility in this particular study, in which comparability of categories across systems was an important analysis consideration. These doubts, coupled with difficulties in locating trained FlaCCS coders, and potential problems in applying this instrument to videotapes, led to the decision to omit the FlaCCS from the current investigation. To compensate for the data lost by this decision, two other systems were selected which would allow a relatively short period of coder training. The systems chosen were the Cerli Verbal-Behavior Classification System, and the Classroom Communication Observational Categories; the data collection procedures for these classroom observation systems will be described next.

Cerli Verbal-Behavior Classification System (CVC)

Cerli's Verbal-Behavior Classification System (CVC)[4] is a 16-category instrument for recording and classifying verbal statements made by teachers in the classroom. Classifications are made every time there is (1) a change in the process or substance of verbal communications; (2) a change in speaker; (3) a new sentence; or, (4) if none of the above occurs, every six seconds. Each statement is coded according to two dimensions: a "How" dimension, concerned with process; and a "What" dimension, concerned with substance. Each of these dimensions is composed of four categories and combine to make a 16-category matrix. See Appendix E for a copy of the CVC instrument.

Two graduate students were employed to learn the CVC system and code the test tapes. Since the CVC is a relatively simple system to learn and no expert trainers were available, the training was conducted by an EOT staff member who had participated in the Flanders training sessions.

After becoming familiar with the categories and practicing the exercises provided by the CVC manual, the EOT staff trainer applied the system to a number of the training tapes. At this point, ground rules given in the training manual were supplemented by ones felt by the trainer to facilitate the coding. After approximately 30 hours of preparation, training of the coders began, following the same format as the trainer's, with the addition of a more extensive period spent coding the training tapes. After approximately 8 days of training, the coders demonstrated consistent, high reliabilities and were instructed to begin coding the test tapes. Reliability coefficients for the CVC data are given in Table I.

In addition to the CVC, these coders completed Teacher Evaluation Scale forms for each tape.

Classroom Communication Observational Categories (CCO)

The focus of the Classroom Communication Observational Categories (CCO) (Withall, Lewis, & Newell, 1961) is on the "communication act," defined as the exchange of information, direction, concepts, or evaluations between two or more persons. Both verbal and nonverbal behaviors are scored on this 14-category system, for both teachers and pupils. The coding dimensions focus on affective and cognitive behaviors. Coding is based on category changes, or if no change occurs, on a 10-second interval. A copy of the CCO is included in Appendix F.

Training on the CCO followed basically the same format as that of the CVC. Familiarization with the categories was followed by practice in coding

with the training videotapes and elaboration of ground rules by the EOT trainer. Since no training materials were given in the CCO manual, there was much more extensive work done by the EOT trainer on categorizing types of teacher behavior and development of ground rules for coding than was done for the CVC. Two graduate students were then trained to use the CCO to code first the training tapes, and after sufficient reliability was established, the test tapes. Training extended over a two-week period. CCO reliability data are given in Table I. The coders also supplied data on the Teacher Evaluation Scale, described later in this report.

High Inference Systems

Classroom Observation Scales (COS)

Intended to measure classroom process variables for research on teaching, the Classroom Observation Scales (COS) (Emmer, 1971) compose a 12-category global rating system. Ratings are made on a Likert-type scale ranging in value from one (the behavior occurs infrequently) to five (the behavior occurs frequently). The suggested observation interval is 15 minutes; in the current study COS forms were completed by each of the DIS coders at the end of each test videotape. Since the coders had already received training on the COS for a previous data collection effort, no specific training for the current study was given. Percent agreement between the two coders was calculated for each of the test tapes; these values are given in Table II. A copy of the COS is included as Appendix G.

Teacher Evaluation Scale (TES)

The Teacher Evaluation Scale (TES) is a high-inference rating system based on the Global Rating Scales (GRS) (Poynor & Wetherold, 1976). This instrument was developed on the basis of Rosenshine's (1971) review of

research studies relating teacher behavior to pupil achievement and a review of existing teacher observation instruments. It was subsequently used during the data collection activities of the EOT program during 1974-75 (see Poynor & Wetherold, 1976, for a complete description of and reliability information for this instrument).

For the purposes of the present study, two members of the EOT staff modified the GRS by a process of reviewing the categories and then dropping those that were felt to be redundant, retaining those that seemed applicable, and adding categories that would make the instrument more comprehensive. Wording of the definitions of categories was also changed in those cases where it was felt a clearer description of the variable to be rated was needed. A copy of the TES is included in Appendix H.

One of the purposes of developing the TES was to provide a high-inference companion instrument for the FSIA during this study. The TES was also used by the CCO and CVC coders. At the end of each coding session, each of the coders completed a TES for the videotapes just viewed, indicating for each category the amount or level of behavior observed. Percent agreement values were calculated between each pair of coders for the test tapes. These values are given in Table II.

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4. CERLI Verbal-Behavior Classification System (CVC), by Cooperative Educational Research Laboratory, Inc. By permission of Everette Breningmeyer, Cooperative Educational Research Laboratory, Inc., Northfield, Illinois. From a Report to the Office of Education, U. S. Department of Health, Education and Welfare, Contract OEC 3-7-061391-3061, April, 1969.

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TABLE I

Low-Inference Systems

Interobserver Reliability Values For the 36 Sample Tapes

and 3 Reliability Tapes†

Tape #	STARS	DIS	OScAR	FSIA	CVC	CCO
1	77	42	93	86	78	87
2	77	27	90	92	82	86
3	88	59	87	92	82	83
4	79	44	89	90	85	80
5	70	63	80	94	86	86
6	73	20	90	97	85	82
7	85	60	88	93	84	86
8	67	38	91	95	78	84
9	67	18	92	89	86	74
10	45	26	94	95	82	77
11	56	50	95	97	83	86
12	79	55	94	89	78	86
13	72	41	88	96	83	93
14	65	16	96	91	86	89
15	88	29	94	96	87	89
16	76	18	90	92	91	90
17	73	35	90	91	80	87
18	71	16	88	94	82	86
19	82	35	91	96	88	89
20	75	07	92	91	74	86
21	72	17	90	92	85	86
22	75	00	91	91	67	89
23	67	51	90	90	71	85
24	70	34	94	96	75	77
25	79	10	92	84	87	89
26	80	01	97	95	78	90
27	70*	27	97	94	77	93
28	89*	32	92	89	76	90
29	63	38	94	92	91	82
30	58	00	96	97	71	82
31	68	00	97	94	72	95
32	83	10	91	95	63	85
33	72	45	88	98	84	91
34	72	38	93	98	83	80
35	71	06	91	89	74	88
36	78*	26	93	96	86	86
Mean	73	29	92	93	80	86
Standard Deviation	9	18	3	3	7	5
Highest Prestudy Reliability	72	85	88	91	79	86

†Calculated using Scott's Coefficient'; decimals omitted.

*Coded at Stanford.

TABLE II

High-Inference Systems

Percent Agreement Between Coders* Across the 36 Sample Tapes

Tape #	COS	TES-FSIA	TES-CVC	TES-CCO
1	83	92	92	92
2	100	100	92	92
3	67	100	92	92
4	50	100	100	100
5	92	92	75	67
6	75	92	83	67
7	67	92	92	92
8	75	100	75	92
9	67	100	92	75
10	67	92	100	92
11	75	100	83	100
12	83	100	83	92
13	58	67	83	100
14	92	75	83	100
15	67	100	100	92
16	83	100	100	100
17	50	92	75	100
18	83	92	83	75
19	75	92	100	83
20	58	100	83	83
21	83	100	100	75
22	75	92	83	83
23	33	83	92	83
24	75	100	83	92
25	67	92	75	92
26	92	100	92	67
27	75	100	67	100
28	83	91	92	83
29	58	100	100	75
30	83	100	75	92
31	67	100	83	83
32	75	100	92	83
33	100	92	83	100
34	75	100	92	100
35	83	92	100	92
36	92	100	83	92
Mean	75	95	88	88
Standard Deviation	14	7	9	10

*Percent agreement between coders is the percent of categories on which the observers disagreed by no more than one point on the rating scale.

APPENDIX A

Example of Tape Description Given to Coders

Occasion 1

Teacher 1 Male, with beard, wearing white pants;
full screen--teacher is at center
Beginning: Teacher: "Today is all confused,
compared to the other day."

Start Coding: Teacher: "Do we all remember who we are?"
(2.5 minutes into tape)

Appendix B

The Spaulding Teacher Activity Rating Schedule (STARS)

General Categories

Category Number	Code	
1	Non	Non-transactional Behavior: Score "Non" when there are no teacher-pupil transactions of any kind.
2	-	Disapproval with aversive stimuli present: Teacher operants with generally punishing effects. Physical transactions with aversive qualities--shaking, slapping, ear pulling, spanking, pinching, hair pulling, etc. Verbal transactions with aversive qualities--shaming, ridiculing, using sarcasm, castigation, belittling, yelling, threats accompanied by anger or other negative affect, etc.
3	T/O	Disapproval (without aversive stimuli) indicated by removal of social reinforcers or in some cases physical reinforcers: The teacher removes a reinforcing object from the child. The action of the teacher results in "time-out" (T/O) from a reinforcing activity or social setting.
4	Ign	Withholding reinforcers when a student or child bids for attention: Score "Ign" when the teacher obviously ignores a child's bid for attention or a noticeable disturbance in the classroom or other school setting.
5	+	Approval with positive affect present: Teacher operants with generally reinforcing effects. Physical or verbal transactions with positive affect indicating support, love, appreciation, confidence, acceptance, approval, gratitude, enjoyment, sympathy, etc. Teacher shows approval by granting special privilege or by giving a superior mark or grade.

Social and/or Motor Structuring and Restructuring Categories

6	S	Social and/or Motor Structuring: Teacher operants setting or eliciting social or motor performance goals and/or action, or proscribing certain actions (without aversive affect). "S" is scored for those transactions in which the teacher sets goals, procedures, or limits for individuals or groups of students.
7	R	Social and/or Motor Restructuring: Teacher operants repeating, clarifying, or modifying social or motor performance goals and/or actions. When negative affect is present (as in sarcasm or nagging) score disapproval (-). "R" is scored whenever the teacher intervenes in the on-going social or

Category Number	Code	
		motor activity or inactivity of an individual or group to stop, change, or speed up, in some way, the activity itself or modify the goals, procedures, or limits of the activity.
Cognitive Structuring and Restructuring		
8	Inf	Commenting, informing, regarding incidental events, situations, phenomena, etc.,; or asking, requesting, or eliciting information unrelated to intended cognitive development or the academic task at hand. Asking for status (for example, questions such as, "Do you understand the directions?", "Are there any questions?").
Concept Formation, Attainment, or Development by Discovery Methods		
9	↑ Lo	Presenting data, generating data, identifying data and/or asking for operations with data presented of identified to obtain concepts regarding simple facts, events, structures, stable phenomena, or lawful relationships by open inductive, structured inductive, or semi-deductive methods.
10	↑ Hi	Presenting data, generating data, identifying data and/or asking for operations with data presented or identified to obtain complex concepts regarding relationships between variables, abstract principles, theoretical constructs, or hypothesized functions, etc., by open inductive, structured inductive, or semi-deductive methods.
Concept Formation, Concept Attainment, or Development by Deductive Methods		
11	↓ Lo	Concept formation, attainment, or development regarding simple facts or events, fixed structures, stable phenomena, or lawful one-to-one relationships by simple deductive methods.
12	↓ Hi	Concept formation, attainment, or development regarding complex facts or events, complex or dynamic structures, dynamic phenomena, or complex principles or functions by complex deductive or hypotheticodeductive methods.
Concept Formation, Concept Attainment, or Development by Transductive Methods		
13	→	Concept formation, attainment, or development regarding simple or complex events, structures, phenomena, principles, or functions by transductive (analogical) methods. The goal of the teacher is to develop understanding of concepts by means of analogues, resemblances, likenesses, similarities, etc.
Concept Formation, Concept Attainment, or Development by Expository Methods		
14	T Lo	Telling: Concept formation, attainment, or development regarding simple facts or events, fixed structures, stable

Category Number	Code	
		phenomena, or lawful one-to-one relationships by means of descriptions; explanations of characteristics, traits, patterns, appearances; simple rules, formulas, recipes; pictorial representations; graphs; demonstrations; etc.
15	T Hi	Telling: Concept formation, attainment, or development regarding complex facts or events, complex or dynamic structures, dynamic phenomena, or complex principles or functions by means of descriptions; explanations of characteristics, traits, patterns, appearances, rules, formulas, recipes; pictorial representations; graphs; demonstrations; etc.
16	RP Lo	Rote Process: Repetition of simple words or phrases in a mechanical fashion with little or no attention to the meaning. Presenting words, letter, sounds, signals, phrases, verbal rules, discrete motor acts or other signs, asking for immediate imitation or repetition as a means of learning the cognitive material for later recall or recognition.
17	RP Hi	Rote Process regarding complex patterns, rules, formulas, definitions, etc. Repetition of words or phrases in a mechanical fashion with little or no attention to the meaning.
Cognitive Structuring or Restructuring by Focusing Attention on Data		
18	F	Focusing attention on relevant cues, traits, attributes, arrays of data, sets of information, or passages, etc. The focusing process may identify specific items of a complex set or refer to a large amount of information to be dealt with in some manner. The instructor provides cues or prompts the student without telling the specific response desired.
Concepts Checking, Testing, and Strengthening		
19	AR Lo	Asking for or eliciting recall of names, descriptions, phrases, definitions, attributes, traits, properties, characteristics, etc., regarding simple facts or events, fixed structures, stable phenomena, or lawful one-to-one relationships.
20	AR Hi	Asking for or eliciting recall of complex relationships, principles, functions, or patterns, rules, or historical conditions.
21	AU Lo	Asking for use or application of concepts regarding simple facts or simple events, fixed structures, stable phenomena, or lawful one-to-one relationships, either for the purpose of checking on the degree to which the concept or cognitive skill has been mastered or to give practice

Category Number	Code	
		in the use of the concept to strengthen it. The cognitive task involves a transformation of data provided in the original learning situation.
22	AU Hi	Asking for use or application of knowledge of complex relationships, principles, rules, patterns, functions, or historical conditions, either for the purpose of checking on the degree to which the concept or cognitive skill has been mastered or to give practice in the use of the concepts involved to strengthen them and refine their use. The cognitive task involves a transformation of data gathered in the original learning situation.
Valuing		
23	Ex	Expressing, telling, informing others regarding values, opinions, feelings, desires, likes, etc.
24	El	Eliciting or asking for student expression of values, opinions, feelings, desires, likes, etc.
Listening and/or Observing		
25	L/O	Listening to or Observing non-teacher directed pupil activity. Teacher non-verbal transactional behavior, attending to non-teacher directed child or group operants. The child or group behaviors observed by the teacher may be cognitive or social. Score "L/O" when a teacher is nearby and listening to a pupil or observing a pupil, providing the pupil is not questioned, commanded, or directed by the teacher and is aware he is being listened to or observed.

Appendix C

Observation Schedule and Record 5V(TX)

[OScAR 5V(TX)]

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITION
	01	Not Evaluated	NOEV	Teacher does not acknowledge pupil activity
1	02	Considering Statement	CNSUP	Teacher shows consideration for pupil or awareness of his desires
2	03	Informing Statement	INFAP	Teacher gives information
3	04	Describing Statement	DSCAC	Teacher describes procedure or makes statement not otherwise classifiable
4	05	Directing Statement	DIREJ	Teacher directs pupil to do something
5	06	Rebuking Statement	RBCRT	Teacher rebukes pupil
6	07	Desisting Statement	DST	Teacher directs pupil to stop doing something
7	08	Non-Substantive Question	PRNS	Teacher asks non-substantive question not otherwise classifiable
8	09	Procedural Question Positive	PR+	Teacher offers pupil a choice of actions
9	10	Pupil Non-Substantive Utterance	PNS	Pupil speaks to pupil about non-substantive matters
10	11	Pupil Non-Substantive Not Evaluated	PNS NOEV	Teacher does not explicitly acknowledge non-substantive pupil utterance before continuing lesson
11	12	Pupil Non-Substantive Supported	PNS CNSUP	Teacher praises or responds with consideration to a non-substantive pupil utterance

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITION
12	13	Pupil Non-Substantive Approved	PNS INFAP	Teacher indicates that non-substantive pupil statement is acceptable, or answers non-substantive pupil question
13	14	Pupil Non-Substantive Acknowledged	PNS DSCAC	Teacher acknowledges non-substantive pupil utterance without indicating whether it is acceptable or not
14	15	Pupil Non-Substantive Neutrally Rejected	PNS DIREJ	Teacher indicates that non-substantive pupil statement is unacceptable, or refuses to answer non-substantive pupil question
15	16	Pupil Non-Substantive Criticized	PNS RBCRT	Teacher criticizes non-substantive pupil utterance
16	17	Pupil Procedural Question Negative	PNS DST	Teacher refuses permission asked for by pupil
17	18	Pupil Procedural Question Neutral	PNC PRNS	Teacher neither gives nor refuses permission asked for by pupil
18	19	Pupil Procedural Question Positive	PNS PR+	Teacher gives permission asked for by pupil
19	20	Pupil Question	PQU	Pupil addresses a substantive question to another pupil
20	21	Pupil Question Not Evaluated	PQU NOEV	Teacher does not explicitly acknowledge substantive pupil question before continuing lesson
21	22	Pupil Question Supported	PQU CNSUP	Teacher praises substantive pupil question
22	23	Pupil Question Approved	PQU INFAP	Teacher answers substantive pupil question
23	24	Pupil Question Acknowledged	PQU DSCAC	Teacher postpones answering substantive pupil question

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITIONS
24	25	Pupil Question Neutrally Rejected	PQU DIREJ	Teacher refuses to answer substantive pupil question
25	26	Pupil Question Criticized	PQU RBCRT	Teacher criticizes substantive pupil question
26	30	Pupil Statement	PST	Pupil speaks to another pupil about substantive content
27	31	Pupil Statement Not Evaluated	PST NOEV	Teacher does not explicitly acknowledge substantive pupil statement before continuing lesson
28	32	Pupil Statement Supported	PST CNSUP	Teacher praises substantive pupil statement
29	33	Pupil Statement Approved	PST INFAP	Teacher indicates that substantive content of pupil statement is correct or acceptable
30	34	Pupil Statement Acknowledged	PST DSCAC	Teacher acknowledges substantive pupil statement without indicating whether it is correct or acceptable
31	35	Pupil Statement Neutrally Rejected	PST DIREJ	Teacher indicates that substantive content of pupil statement is incorrect or unacceptable
32	36	Pupil Statement Criticized	PST RBCRT	Teacher criticizes substantive pupil statement
33	40	Pupil Response	PRS	Different pupil speaks in inter-pupil discussion
34	41	Pupil Response Not Evaluated	PRS NOEV	Teacher does not acknowledge pupil's answer to previous question before continuing lesson
35	42	Pupil Response Supported	PRS CNSUP	Teacher praises pupil's answer to previous question
36	43	Pupil Response Approved	PRS INFAP	Teacher indicates that pupil's answer to previous question is correct or acceptable

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITIONS
37	44	Pupil Response Acknowledged	PRS DSCAC	Teacher acknowledges pupil's answer to previous question without indicating whether it is correct or acceptable
38	45	Pupil Response Neutrally Rejected	PRS DIREJ	Teacher indicates that pupil's answer to previous question is incorrect or unacceptable
39	46	Pupil Response Criticized	PRS RBCRT	Teacher criticizes pupil's answer to previous question
40	50	Problem Structuring Statement	PBST	Teacher sets a problem or raises a question without indicating who is to answer it
41	51	Choral Response	CHORUS	Pupils utter response together as a group
42	52	Choral Response Supported	CHORUS CNSUP	Teacher praises choral response to previous question
43	53	Choral Response Approved	CHORUS INFAP	Teacher indicates that choral response to previous question is correct or acceptable
44	54	Choral Response Acknowledged	CHORUS DSCAC	Teacher acknowledges choral response to previous question without indicating whether it is correct or acceptable
45	55	Choral Response Neutrally Rejected	CHORUS DIREJ	Teacher indicates that choral response to previous question is incorrect or unacceptable
46	56	Choral Response Criticized	CHORUS RBCRT	Teacher criticizes choral response to previous question
47	60	Convergent Question Not Answered	CVG	Teacher asks pupil a question which calls for one right answer, but pupil does not reply
48	61	Convergent Interchange Not Evaluated	CVG NOEV	Teacher does not acknowledge pupil's answer to convergent question before continuing lesson
49	62	Convergent Interchange Supported	CVG CNSUP	Teacher praises pupil for giving the right answer to convergent question

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITIONS
50	63	Convergent Interchange Approved	CVG INFAP	Teacher indicates that pupil's answer to convergent question is the right one
51	64	Convergent Interchange Acknowledged	CVG DSCAC	Teacher acknowledges pupil's answer to convergent question but does not indicate whether it is the right one
52	65	Convergent Interchange Neutrally Rejected	CVG DIREJ	Teacher indicates that pupil's answer to convergent question is not the right one
53	66	Convergent Interchange Criticized	CVG RBCRT	Teacher criticizes pupil's response to convergent question
54	70	Elaborating Question (1) Not Answered	EL1	Teacher asks pupil to extend or elaborate his answer, but pupil does not respond
55	71	Elaborating Interchange (1) Not Evaluated	EL1 NOEV	Teacher does not acknowledge pupil's elaboration of his answer before continuing lesson
56	72	Elaborating Interchange (1) Supported	EL1 CNSUP	Teacher praises pupil's elaboration of his own answer
57	73	Elaborating Interchange (1) Approved	EL1 INFAP	Teacher indicates that pupil's elaboration of his own answer is acceptable
58	74	Elaborating Interchange (1) Acknowledged	EL1 DSCAC	Teacher acknowledges pupil's elaboration of his own answer without indicating whether it is acceptable
59	75	Elaborating Interchange (1) Neutrally Rejected	EL1 DIREJ	Teacher indicates that pupil's elaboration of his own answer is unacceptable
60	76	Elaborating Interchange (1) Criticized	EL1 RBCRT	Teacher criticizes pupil's elaboration of his own answer
61	80	Elaborating Question (2) Not Answered	EL2	Teacher asks pupil to elaborate on another pupil's comment, but pupil does not answer
62	81	Elaborating Interchange (2) Not Evaluated	EL2 NOEV	Teacher does not acknowledge pupil's elaboration of another pupil's remark before continuing lesson

Category No.	Identifying No.	NAME	ABBREVIATION	DEFINITIONS
63	82	Elaborating Interchange (2) Supported	EL2 CNSUP	Teacher praises pupil's elaboration of another pupil's remark
64	83	Elaborating Interchange (2) Approved	EL2 INFAP	Teacher indicates that pupil's elaboration of another pupil's remark is acceptable
65	84	Elaborating Interchange (2) Acknowledged	EL2 DSCAC	Teacher acknowledges pupil's elaboration of another pupil's remark, but does not indicate whether it is acceptable
66	85	Elaborating Interchange (2) Neutrally Rejected	EL2 DIREJ	Teacher indicates that pupil's elaboration of another pupil's remark is not acceptable
67	86	Elaborating Interchange (2) Criticized	EL2 RBCRT	Teacher criticizes pupil's elaboration of another pupil's remark
68	90	Divergent Question Not Answered	DVG	Teacher asks pupil a question to which more than one answer may be acceptable or correct, but pupil does not respond
69	91	Divergent Interchange Not Evaluated	DVG NOEV	Teacher does not acknowledge pupil's answer to divergent question before continuing lesson
70	92	Divergent Interchange Supported	DVG CNSUP	Teacher praises pupil's answers to divergent question
71	93	Divergent Interchange Approved	DVG INFAP	Teacher indicates that pupil's answer to divergent question is acceptable
72	94	Divergent Interchange Acknowledged	DVG DSCAC	Teacher acknowledges pupil's answer to divergent question without indicating whether it is acceptable
73	95	Divergent Interchange Neutrally Rejected	DVG DIREJ	Teacher indicates that pupil's answer to divergent question is not acceptable
74	96	Divergent Interchange Criticized	DVG RBCRT	Teacher criticizes pupil's answer to divergent question

Appendix D

Flanders' Interaction Analysis Categories

TEACHER TALK	INDIRECT INFLUENCE	1. ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a non-threatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included. 2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying "um hm?" or "go on" are included. 3. ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As a teacher brings more of his own ideas into play, shift to category five. 4. ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5. LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking rhetorical questions. 6. GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply. 7. CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8. STUDENT TALK - RESPONSE: a student makes a predictable response to teacher. Teacher initiates the contact or solicits student statement and sets limits to what the student says. 9. STUDENT TALK - INITIATION: talk by students which they initiate. Unpredictable statements in response to teacher. Shift from 8 to 9 as student introduces own ideas.
		10. SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

Appendix E
CERLI VERBAL-BEHAVIOR CLASSIFICATION SYSTEM (CVC)

HOW \ WHAT	COGNITION MEMORY C	PRODUCTIVE CRITICAL THINKING T	EXPRESSED EMOTION E	CLASS MANAGEMENT M
S SEEK	SC: Seeks factual or specific information.	ST: Asks for reasoning, explanation, interpretation, judgment, or evaluation.	SE: Asks for feelings; asks about feelings. Tries to elicit an expression of emotion.	SM: Asks about rules, plans, or directions.
I INFORM	IC: Tells factual specific material, gives a statement of fact.	IT: Gives reasons, interpretations, judgments or evaluation.	IE: Gives or tells feelings.	IM: Tells classroom structure, rules, directions, plans; guides attention.
A ACCEPT	AC: Approves factual or specific answers. Accepts recall or rote material.	AT: Accepts reasoned ideas, interpretations, judgments, concepts. Approves or praises thinking.	AE: Approves or empathizes with feelings expressed.	AM: Accepts or agrees with plans, rules, directions or suggestions for these.
R REJECT	RC: Disagree with answer or factual statement.	RT: Disapproves of thinking, interpretation, judgment or evaluation.	RE: Responds negatively to feelings expressed by others.	RM: Rejects rules, plans, expectations, directions, requests, suggestions for these.

Appendix F

CATEGORIES FOR

CLASSROOM COMMUNICATION OBSERVATIONAL CATEGORIES (CCO)

John Withall W. W. Lewis John M. Newell

1. Asks for Information
An act having as its major intent the eliciting of a response which presumably may be evaluated for accuracy, either by objective operation, general acceptance, or reference to an authority (such as the teacher or a text book).

Examples - Asks question about content of lesson; asks for report; asks for confirmation of response previously given; asks for repetition of what has been said; offers incomplete statement with the expectation that another will finish it; asks any question in such a way as to imply that there is a "right" answer; asks name of an object; asks for definition; asks for enumeration.

2. Seeks or Accepts Direction
An act implying willingness to consider suggestion or direction from another, or if suggestion or direction has already been offered, an act or statement indicating compliance.

Examples - Asks how to begin an assigned task; asks what to do next; asks which procedure to follow; asks for volunteers; follows directions of another; agrees with suggestion or direction; indicates that direction will be followed at some future time; asks for permission for a specific act.

3. Asks for Opinion or Analysis
An act intended to elicit problem-structuring statements from others, either affective-evaluative or cognitive-interpretive.

Examples - Asks for opinion, wish, feeling, belief, or preference; asks for evaluation of behavior; requests for interpretation or explanation of some phenomena without implying that there is one "correct" answer; requests for elaboration or examples of a concept; requests for statement of relationships between concepts; non-directive leads or questions to facilitate self-exploration by others; reflection of feeling or alternate meaning of what another has said for purposes of clarifying meaning; asks for interpretation of another's personal experience (as distinguished from asking for a report of experience).

4. Listens
Five seconds or more out of any 10-sec. interval where an individual is listening or attending to another individual is given a listening score (less than 5 sec. is not scored).

5. Gives Information
An act intended to convey, confirm, or infirm "facts" which may be evaluated by objective operation, general acceptance, or reference to an authority.

Examples - Giving data such as names, dates, speed, capacity, etc., relevant to a topic under discussion; attempting to provide information requested by another; confirming the accuracy of others' responses; denying the accuracy of others' responses; gives report on what one has seen, heard, read, etc.; gives repetition of what has been said; names object; gives definition; gives enumeration.

6. Gives Suggestion
An act intended to structure action or indicate alternatives for others which, at the same time, implies autonomy for others by providing more than one alternative or allowing for refusal.

Examples - Offering a procedure in a tentative way; offering two or more procedures, leaving choice to others; stating a preferred behavior without indicating that the preference holds for others; volunteers own services.

7. Gives Direction
An act intended to structure some action of another in which compliance seems to be taken for granted, or in which non-compliance would probably elicit some form of disapproval.

Examples - Calling class to attention; calling attention to some detail; getting attention of another by calling his name; routine administrative directions or orders; stating expectation of behavior to be followed; setting limits on behavior; stating consequences of behavior; granting a request; denying a request.

8. Gives Opinion
An act intended to structure or give direction to a topic under discussion by use of speaker's internal, private, or unstated criteria.

Examples - States opinions, wish, feeling, belief, or preference; makes a statement or asks a question reflecting a personal point of view; verbalizes introspective processes; gives criticism or evaluation of a behavior or concept; agrees or disagrees with opinion voiced by another.

9. Gives Analysis
An act intended to structure or give direction to a topic under discussion by reference to a frame of reference or a criterion that is explicitly stated and external to speaker's personal point of view.

Examples - Gives interpretation or explanation of some phenomena without implying that it is the only "correct" way of looking at it; elaborates or gives examples of a concept; points out relationships between examples and concepts or between two or more concepts; points out discrepancies between concept and examples; proposes hypothetical example or case to illustrate a point or raise a question.

10. Shows Positive Feeling
An act which implies positive evaluation of some behavior or interaction in the observational field, regardless of whether the referent is the self or some other person.

Examples - Any friendly act or overture, such as greeting or responding to a greeting; praising, approving, encouraging, rewarding, or showing active attention to others; sharing or sympathizing with others, expressions of satisfaction, enjoyment, or relief; joking or laughing "with" others.

11. Inhibits Communication
An act which implies unwillingness or inability to engage in the ongoing process of communication, regardless of whether the act stems from negative evaluation, internal tension, or disinterest.

Examples - Does not respond when response would ordinarily be expected; is cool, aloof, or disinterested in what is going on; is inattentive to or ignores a question or request; does not comply with a request; shows tension by blocking, "fright," etc.; accepts criticism or rebuff without reply.

12. Shows Negative Feeling
An act which implies active negative evaluation of some behavior or interaction in the observational field, regardless of whether the referent is the self or some other person.

Examples - Disapproving, disparaging, threatening, discouraging another's behaviors; lowering another's status; defending or asserting self; poking fun, belittling, or laughing "at" others; expressing fear, rage, hostility, disappointment, discouragement, displeasure, unhappiness, etc.

13. No Communication
The behavior occurring in the classroom is not relevant to teacher-pupil communication during a 10-sec. interval.

Appendix G

CLASSROOM OBSERVATION SCALES

1. Pupil Attention (little = 1, much = 5) ____

   Pupil orientation toward the teacher, task at hand, or whatever classroom activities are appropriate. Behavior focused upon or engaged in appropriate activity. Includes eye contact, body orientation, response to questions or other eliciting cues, and participation in class activity.

2. Teacher-Initiated Problem Solving (little = 1, much = 5) ____

   The degree to which the teacher exhibits a particular style of instruction, i.e., addresses questions and problems, elaborating questions directed to other students, probes or delves into student answers.

3. Pupil-to-Pupil Interaction (little = 1, much = 5) ____

   Substantive pupil utterances in which one pupil interacts with another pupil, a group of pupils, or responds indirectly to the teacher.

4. % Teacher Presentation (little = 1, much = 5) ____

   Estimate of the relative amount of class time occupied by teacher presentation of substantive information. Teacher presentation is defined as substantive (content-oriented) verbal or nonverbal behavior that provides information; it should not, however, be confused with teacher talk.

5. Negative Affect (little = 1, much = 5) ____

   Behaviors that show negative or hostile feelings on the part of either or both the teacher and pupils. Includes both verbal and nonverbal behaviors, e.g., teacher criticism or correction, teacher desist statements, teacher sarcasm or ridicule, pupil hostility, and pupil resistance.

6. Positive Affect (little = 1, much = 5) ____

   Teacher behaviors that show support of and positive regard for pupils and their behavior, including smiling, kidding and joking, encouragement and hints, praise, moving close to pupils (in a positive way), touching affectionately, and making supportive statements.

7. Higher Level Cognitive Pupil Behavior (little = 1, much = 5) ____

Focus upon verbal behaviors that give evidence of higher or more complex cognitive processes, i.e., when a student makes a generalization or inference, explains an answer by citing data or rules, solves a problem, or defines concepts.

8. Passive Pupil Behavior (little = 1, much = 5) ____

Extent to which pupils engage in passive, as opposed to active, modes of behavior. Withdrawal by the pupil from engagement with his surroundings is classified as passive, as well as visual wandering and passive observation.

9. Convergent-Evaluative Interaction (little = 1, much = 5) ____

Focus upon obtaining the correct answer to the teacher's question, with little or no attempt to continue the contact once the answer has been obtained, e.g., teacher questions, usually having an identifiable, correct answer, are accompanied by pupil response to the question.

10. Task Orientation (little = 1, much = 5) ____

A measure of the degree to which the teacher works toward content-related, substantive goals. High task orientation occurs when there is a definite emphasis upon student attainment of content objectives.

11. Clarity (little = 1, much = 5) ____

The degree to which the teacher's presentation of material and his substantive interactions with students are understood by them.

12. Enthusiasm (little = 1, much = 5) ____

Extent to which the teacher displays interest, vitality, and involvement in his subject and his instruction.

Appendix H

TEACHER EVALUATION SCALE

1. Amount of Criticism (high = 1, low = 5) _____

   Criticism, as defined for this instrument, refers to the behaviors a teacher uses in finding fault with and attempting to correct student cognitive processes and/or behavior.

2. Quality of Criticism (kind = 1, low = 5) _____

   Kind teacher criticism is defined as being constructive, supportive, and considerate, achieving a positive effect. Harsh criticism has undertones of hostility, anger, and/or ridicule, producing a negative effect.

3. Amount of Praise and/or Encouragement (high = 1, low = 5) _____

   Praise/Encouragement is defined as positive reinforcement of substantive or task related behavior of pupil.

4. Quality of Emotional Atmosphere (warm = 1, low = 5) _____

   Warm atmosphere consists of teacher behavior which is kind, friendly, humanistic, and accepting of pupils' feelings. Cold atmosphere is demonstrated by aloofness and no acknowledgement of pupils' feelings.

5. Amount of Cognitive Variety (high = 1, low = 5) _____

   Cognitive variety reflects the degree to which a teacher varies instructional modes to achieve a variety of cognitive processes in the class.

6. Amount of Response Elicitation (high = 1, low = 5) _____

   Response-elicitation refers to the frequency with which teacher asks for verbal output from the pupil.

7. Amount of Lecturing (high = 1, low = 5) _____

   Lecturing consists of giving factual information and explanations about content and procedure.

8. Amount of Direction Giving Behavior (high = 1, low = 5) _____

   Direction giving behavior consists of commands and orders to which a student is expected to comply.

9. Amount of Opinion Giving (high = 1, low = 5) _____

   Frequency with which teacher issues personal views or judgments.